

UTKIN, I.A.; SHAMSHEV, F.A.

Ways of developing the technology and methodology of test drilling.  
Zap. LGI 41 no.2:3-6 '61. (MIRA 16:5)  
(Boring)

SUMAROKOV, O.M.; UTKIN, I.A.; MAL'CHENOK, V.O.

Combined vibrator for percussive rotary drilling. Biol.nauch.-  
tekh.inform VIMS no.1:97-98 '13. (MIRA 18:2)

SUMAROKOV, O.M.; UTKIN, I.A.; MAL'CHENOK, V.O.

Sectional magnitostriktion vibrator for percussive-rotary drilling.  
Biul. nauch.-tekh. inform. VIMS no.2:76-7, '63. (MIRA 18:2)

MARAMZIN, A.V., kand. tekhn. nauk; UTKIN, I.A., doktor tekhn. nauk  
prof., nauchr. sovetnik; RAGINA, G.M., red.

[Drilling boreholes in perennially frozen ground; methods  
handbook] Buzhenie skvazhin v mnogoletnei merzlote; metodi-  
cheskoe rukovodstvo. Leningrad, Gostoptekhizdat, 1963.  
287 p. (MIRA 17:4)

GITTSIGRAT, Ernest Ernestovich; PINKEVICH, Al'bert Al'bertovich;  
VINOGRADOVA, Larisa Vasil'yevna; UTKIN, I.A., doktor tekhn.  
nauk, prof., red.; REYKHERT, L.A., ved. red.; YASHCHURZHINSKAYA,  
A.B., tekhn. red.

[English-Russian dictionary on exploration drilling] Anglo-  
russkii terminologicheskii slovar' po geologopoiiskovomu bureniu.  
Pod red. I.A.Utkina. Leningrad, Gostoptekhzdat, 1963. 318 p.  
(English language--Dictionaries--Russian) (MIRA 16:12)  
(Boring--Dictionaries)

UTKIN, I. P.

Hoisting devices in a system of push conveyors. Avt. prom. 28  
no. 6:38-39 Je '62. (MIRA 16:4)

1. Ul'yanskiy avtozavod.

(Hoisting machinery) (Conveying machinery)

UTKIN, I. P.

New method for loading automobiles. Avt. prom. 28 no.9:45  
S '62. (MIRA 15:10)

1. Ul'yanovskiy avtozavod.

(Automobiles—Transportation)

UTKIN, I. P.

Bridge stacker-cranes. Avt. prom. 29 no. 5:44-45 My '63.  
(MIRA 16:4)

1. Ul'yanovskiy avtomobil'nyy zavod imeni Likhacheva.

(Cranes, derricks, etc.)



UTKIN, I.P.

Tow car with a hydraulic drive based on the UAZ-450D motortruck.  
Avt.prom. 29 no.10:17-18 0 '63.

Table with a reversing apron conveyor. 36 (MIRA 16:10)

1. Ul'yanovskiy avtomobil'nyy zavod.

UTKIN, I.P.

Trailer for transporting industrial electric trucks and loaders.  
Avt. prom. 31 no.2:42 F '65. (MIRA 18:3)

1. Ul'yanovskiy avtozavod.

UTKIN, I.P.

Mechanism for removing and dumping long-sized articles from a conveyor. Avt. prom. 31 no.8:41-42 Ag '65. (MIRA 13:8)

1. Ul'yanovskiy avtozavod.

MEL'NIKOV, K.A. (Donetsk); YAKOVENKO, G.D. (Donetsk); UTKIN, I.S.

Making 1,421 m. of mine workings in one month with the use of  
the PK-3m cutter-loader. Ugol' 40 no.12:11-14 D '65.  
(MIRA 18:12)

1. Shakhta No.40 "Kurakhovka" tresta Selidovugol'.

KOVALEV, D.F.; UTKIN, I.S.; SELEMENEV, I.D., brigadir kompleksnoy brigady

When the drifting operations have been well prepared. Ugol'  
Ukr, 6 no.9:4-7 S '62. (MIRA 15:9)

1. Zamestitel' glavnogo inzhenera Leninskogo tresta kombinata Kuzbassugol' Ministerstva ugol'noy promyshlennosti SSSR (for Kovalev). 2. Nachal'nik Leninskogo shakhtoupravleniya Leninskogo tresta kombinata Kuzbassugol' Ministerstva ugol'noy promyshlennosti SSSR (for Utkin).

(Donets Basin--Coal mines and mining)

TERIN, I. V.

USSR/Academy of Sciences  
Automatic Regulations

Jul 49

"Scientific Seminar of the Institute of Automatics  
and Telemechanics on Automatic Electric Drive,"  
I. V. Terin, 5 pp

"Iz Ak Nauk SSSR, Otdel Tekh Nauk" No 7

At the seminar, attended by about 100 scientific  
and engineering-technical workers of Moscow,  
reports submitted included: V. S. Kulebakin's  
"Theory of the Impulse Method of Regulating Speed  
in Electric Motors," F. A. Goryunov's "Operation  
of an Electrical Regulator (Rotorol) in Regulation  
Systems," and D. A. Popov's "Characteristic of

52/49T2

USSR/Academy of Sciences (Contd)

Jul 49

Aircraft Electric Drive." Two sessions were  
devoted to the report, "Frequency Method of  
Analyzing the Quality of a Servoelectric Drive."

52/49T2

SOY/112-58-2-2372

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1958, Nr 2, p 96 (USSR)

AUTHOR: Bogoyavlenskiy, V. N., Utkin, I. V., and Demidenko, Ye. D.

TITLE: An Investigation of an Electric Tractor Main Drive  
(Issledovaniye glavnogo privoda elektrotraktora)

PERIODICAL: Y sb.: Avtomatizatsiya proizvodstva v s. kh., M., AN SSSR,  
1956, pp 204-219

ABSTRACT: The final choice of a system for electric tractor drive has not yet been made. The first tentative solution was a simple replacement of the thermal motor by a squirrel-cage AC motor, with the friction slipping coupling retained in the system. The second solution has been the use of an adjustable-speed AC motor. The dynamic and static operating conditions of both squirrel-cage and wound-rotor motors have been investigated. The first is started under no-load conditions, and then tractor acceleration is effected through a slipping clutch coupling, by a method combining the utilization of the motor torque and the flywheel kinetic energy. An equation describing the dynamic

Card 1/2

SOV/112-58-2-2372

**An Investigation of an Electric Tractor Main Drive**

process of motor acceleration is analyzed, with particular reference to the effect of flywheel size. It has been found that even an oversized squirrel-cage motor has to operate under heavy thermal conditions. Besides, the friction clutch does not secure maneuvering tractor speeds, and a coarse speed regulation causes bumpy operation of the tractor. The wound-rotor motor eliminates the above disadvantages, and the adjustable slipping clutch becomes unnecessary. Field tests of the wound-rotor motor tractor have confirmed that, among its advantages, are stability of acceleration and speed regulation under any load and no need for a friction clutch and flywheel. Instructions are given on calculating steps for the regulating rheostat.

A.I.B.

Card 2/2



UTKIN, I.V.  
TOPCHIEV, A.V., akademik, glavnyy redaktor; KULEBAKIN, V.S., akademik, otvetstvennyy redaktor; GORSKIY, B., redaktor; NEVRAYEV, V.Yu., redaktor; UTKIN, I.V., redaktor; ASTAF'YEVA, G.A., tekhnicheskiiy redaktor.

[Session of the Academy of Sciences of the U.S.S.R on scientific problems of the automatization of production, October 15-20, 1956; scientific and technical problems of automatic electric drive] Sessia Akademii nauk SSSR po nauchnym problemam avtomatizatsii proizvodstva, 15-20 oktiabria 1956 g; nauchno-tekhnicheskie problemy avtomatizirovannogo elektroprivoda. Moskva. 1957. 444 p.

(MIRA 10:5)

1. Akademiya nauk SSSR.

(Electric driving)  
(Automatic control)

KRUTOVA, I.N.; SUBBOTINA, G.V.; UTKIN, I.V.; KOBRINSKIY, A.Ye.; GAVRILOV, M.A;  
PANTIUSHIN, S.V.

Conference of the ~~Academy~~ of Sciences of the U.S.S.R. on Automation.  
Avtom. i telem. 18 no.2:182-192 F '57. (MIRA 10:3)  
(Automatic control)

UTKIN, I. V.

ANVEL'T, Moyya Yur'yevich; GERASIMOV, Viktor Grigor'yevich; ZAYDEL',  
Khristina Eduardovna; KOGEN-DALIN, Vladimir Viktorovich; LYSOV,  
Nikolay Yegorovich; MOROZOV, Dmitriy Nikolayevich; MITUSOV,  
Yevgeniy Vasil'yevich; PANTYUSHIN, Vasil'y Sergeyevich, prof.;  
PUKHLYAKOV, Yuriy Kharlampiyevich; SMIRNOV, Vladimir Aleksan-  
ovich; UTKIN, Ivan Vasil'yevich; SHAROKHIN, Grigoriy Ivanovich,  
KASATKIN, A.S., retsenzent, red.; BORUNOV, N.I., tekhn.red.

[Electrical engineering; general course] Elektrotekhnika;  
obshchii kurs. Pod red. V.S.Pantiushina. Moskva, Gos.energ.  
izd-vo, 1959. 632 p. (MIRA 13:1)  
(Electricity)

UTKIN, I.V. (Sverdlovsk)

Cooperation of the representatives of science and production. Zhel.  
dor. transp. 47 no.7:83-84 J1 '65. (MIRA 18:7)

1. Rektor Ural'skogo instituta inzhenerov zheleznodorozhnogo transporta.

*Utkin*

AUTHORS Kel'man, V.M., Utkin, K.G., 57-9-23/40  
Loginova, L.N.

TITLE A Simplified Construction of a System Containing  
a Rubber Membrane for the Determination of the  
Trajectories of Charged Particles in the Presence of  
a Space Charge.  
(Uproshchennaya konstruktsiya ustanovki s rezinovoy  
membranoy dlya opredeleniya trayektoriy zaryazhennykh  
chastits v prisutstvi ob'yemnogo zaryada.)

PERIODICAL Zhurnal Tekhn. Fiz., 1957, Vol. 27, Nr 9, pp. 2092-2096  
(USSR)

ABSTRACT In the papers by V.M. Kel'man and I.V. Krasnov,  
Zhurnal Tekhn. Fiz., 1955, Vol. 25, p. 1714, and p.1726  
it was shown that the accuracy with which the trajectories  
of charged particles was determined by means of rubber  
membranes could be considerably increased by giving up  
modelling particle motion by means of a ball rolling  
on a rubber surface, and by using only graphic methods  
for the construction of trajectories. Giving up using  
balls makes it possible to simplify construction con-  
siderably, because in such a case the pressure modelling  
the space charge on the membrane could be brought to

CARD 1/2

57-9-23/40

A Simplified Construction of a System Containing a Rubber Membrane for the Determination of the Trajectories of Charged Particles in the Presence of a Space Charge.

bear from above and could be caused by the weight of the plates distributed over the membrane, which are weighted accordingly. Such a simplified system is described.

There are 10 figures and 2 Slavic references.

ASSOCIATION: Leningrad Polytechnical Institute imeni M.I. Kalinin.  
(Leningradskiy politekhnicheskoy institut imeni M.I. Kalinina.)  
SUBMITTED: March 14, 1957.  
AVAILABLE: Library of Congress.

CARD 2/2

UTKIN, K.G.

Investigation of certain designs of electron guns by the rubber-membrane method with consideration of the space charge. Nauch.-tekh.inform.biul.LPI no.5:53-60 '58. (MIRA 12:5)  
(Electron beams)

GANICHEV, D.A.; UTKIN, K.G.

Possibility of the analysis of the distribution of electrons  
according to their total energies in a quasi-spherical condenser.  
Fiz. tver. tela 1 no.4:648-653 '59. (MIRA 12:6)

Leningradskiy politekhnicheskii institut im. M.I. Kalinina.  
(Electrons)



SOV/109-4-1-29/30

AUTHORS: Ganichev, D.A. and Utkin, K.G.

TITLE: Accuracy of the ~~Spherical Condenser~~ Method (O tochnosti metoda sfericheskogo kondensatora)(Letter to the Editor)

PERIODICAL: Radiotekhnika i Elektronika, 1959, Vol 4, Nr 1, p 148 (USSR)

ABSTRACT: N.A. Soboleva investigated the accuracy of the spherical condenser method in a work published in this journal (Ref 1). Here, it is pointed out that the so-called yield coefficient measured by Soboleva should have been zero and the fact that it was not was due to the experimental errors. Consequently, it is pointed out that Soboleva's experiments were burdened with an error when determining the electron trajectories by means of an electrolytic tank. There are 2 Soviet references.

SUBMITTED: May 6, 1958

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**AUTHORS:** Vasil'yev, G.P., Politova, M.M., Shabel'nikova, A.E.,  
Porvova, L.Ya. and Yasnopol'skaya, A.A.

**TITLE:** Interdepartmental Seminar on Cathode Electronics (The 11th Meeting) (Mezhdovedomstvennyy seminar po katodnoy elektronike) (11-e sasedaniye)

**PERIODICAL:** Radiotekhnika i elektronika, 1959, Vol 4, Nr 4, pp 731 - 732 (USSR)

**ABSTRACT:** A meeting of the seminar took place on December 1, 1958 at the Institut radiotekhniki i elektroniki AN SSSR (Institute of Radio-engineering and Electronics of the Ac.Sc.USSR). During the meeting 8 papers were read. Yu.G. Ptushinskiy read a paper entitled: "Kinetics of the Adsorption of Oxygen on the Surface of Tungsten". The second paper, by I.M. Dykman and S.M. Fakar, dealt with "The Admixture Photo-effect of Semiconductors in the Region of the Exciton Light Absorption". The paper by T.L. Matkevich was devoted to "The Problem of the Secondary Electron Emission of Fine Films of a Number of Organic Substances". The problem of "Surface Ionisation in a Strong Electric Field on a Surface with a Non-homogeneous Work Function" was considered by E.Ya. Landberg and N.I. Ionov. I.M. Sakulina and N.I. Ionov read a paper entitled "Detraination of the Electron Attachment Energy and of the Potentials of Atoms by the Method of Surface Ionisation". M.L. Yasnopol'skiy and A.P. Alcheyevskiy dealt with the problem of "Passage of Steady-state Currents Through a Dielectric When the Current Carriers Are Introduced Through One of the Contacts by Means of Electron Bombardment". The lecture by D.A. Ganchev and R.G. Ushin discussed the following - "The Possibility of the REALIZATION of the Total-energy Distribution of Electrons in a Quasi-spherical Condenser". The work by M.L. Kapiton, S.A. Fridrikhov and A.R. Shul'man dealt with an investigation of the secondary electron emission and the characteristic energy losses of a number of dielectrics (glass, mica, fluorite and alkali-haloid monocrystals).

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Card 2/3

USSR-00-6997

AUTHOR: Utkin, K.G.

SOV/120-59-5-25/46

TITLE: A Rubber-membrane Apparatus for the Automatic Determination of Equipotentials, Taking the Space Charge into Account

PERIODICAL: Pribery i tekhnika eksperimenta, 1959, Nr 5, pp 111 - 116 (USSR)

ABSTRACT: The rubber membrane has been widely used to determine two-dimensional electrical fields which are difficult to calculate analytically. Recently, Bobykin et al (Ref 1) and Alma et al (Ref 2) have shown that it is possible to take into account the space charge as well, using a rubber membrane. The application of a rubber membrane in the modeling of electrostatic fields taking the space charge into account is based on the analogy between the equations of a stretched and loaded membrane (small radii of curvature) and the Poisson equation for the electrostatic potential. The equation of the surface of a stretched and loaded membrane is given by Eq (1), where  $h$  is the displacement of the membranes from the equilibrium position,  $P$  is the load per unit area and  $T$  is the tension. Poisson's equation, on the other hand, is given by Eq (2), where ✓

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SOV/120-59-5-25/46

A Rubber-membrane Apparatus for the Automatic Determination of Equipotentials, Taking the Space Charge into Account

$\varphi$  is the potential and  $\rho$  is the space-charge density. At constant  $T$ , Eq (1) and (2) lead to the relation given by Eq (3) and with corresponding boundary conditions, Eq (4) also holds. The boundary conditions on the membrane depend on the form of the electrodes and the displacement of the membrane surface from the equilibrium position (by the electrodes) through a distance proportional to the modelled potential. A distributed load proportional to the space-charge density at the given point is applied to the free surface of the membrane. Figure 1 shows four possible ways of applying a distributed load to a membrane surface (Refs 1-4). The last of these four drawings (Figure 1) in which the load is applied from above, is very much simpler when it is desired to model the space charge and may be used to automatise the process of determination of lines of equal curvature which correspond to projections of equipotential surfaces. This method was used by the present author to find the current-density distribution over a cathode in two-dimensional fields when

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SOV/120-59-5-25/46

**A Rubber-membrane Apparatus for the Automatic Determination of Equipotentials, Taking the Space Charge into Account**

the current is limited by the space charge and the initial velocities of the electrons are zero. Kel'man et al (Ref 3) have shown that when the space charge in the region near the cathode a (Figure 2) is replaced by an equivalent surface charge, placed at a distance of one-quarter of the width of this region, then the potential distribution in the region b (Figure 2) remains unaltered. The potential distribution in an infinite plane diode is then given by Eq (5) (Ref 6), where  $\varphi$  is the potential and  $\delta$  is the current density at the cathode. From Eqs (2) and (5), it follows that the space-charge density in a plane diode is given by Eq (6). The amount of charge in the region a per unit length of the cathode is then given by Eq (7). The surface charge can easily be modelled using a membrane with a localised pressure, applied along a line at a distance  $y_0/4$  from the cathode (Figure 2). If the cathode is in the form of a curved surface, then when  $y_0$  is much smaller, than the radius of curvature of the cathode ✓

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SOV/120-59-5-25/46

A Rubber-membrane Apparatus for the Automatic Determination of Equipotentials, Taking the Space Charge into Account

in the region  $a$ , the potential distribution corresponds to the distribution in the case of an infinite plane diode. In order to find the correspondence between unit weight and unit charge on the membrane, some simple electrostatic problem is first solved. In the present case, 1 CGSU

corresponded to  $0.695 \times 10^4$  g and 1 cm of curvature to a potential of 100 V. The distributed space charge was modelled using loaded dural plates,  $2 \times 2$  cm<sup>2</sup> in area. The localised load was applied with the aid of special "knife edges" in the form of blades 2 cm wide. Usually, the current distribution over the cathode is unknown and is found by the method of successive approximations. The "knife edges" are set up at a distance of 1 cm from the cathode (Figure 3) and are loaded until the membrane becomes horizontal in the region between the cathode and the knife edges. In Figure 1, 1 are the knife edges and 2 are the plates through which the distributed load is applied. With the knife edges loaded, the field pattern

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**A Rubber-membrane Apparatus for the Automatic Determination of Equipotentials, Taking the Space Charge into Account**

is taken as the zero-order approximation. From the knowledge of the pressure applied to the knife-edge line and the correspondence between weight and charge, it is possible to determine the surface charge in the knife-edge plane. Then, using Eq (7), the emission current  $\delta_0$  can be determined. This quantity is then the upper limit of the current density. In the zero-order approximation,  $\delta_0$  is taken as  $(0.5-0.7) \delta_{0 \text{ max}}$ .

The emitting part of the cathode is split into sections whose width is equal to the width of a knife edge. From the field pattern, the electron trajectories beginning on the boundaries of the sections are then plotted graphically. These trajectories are the boundaries of current tubes. The current is considered constant within each current tube. Knowing the potential at each point in a tube and the current density in the tube, it is easy to calculate the load on the membrane in the first approximation.

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SOV/120-59-5-25/46

A Rubber-membrane Apparatus for the Automatic Determination of Equipotentials, Taking the Space Charge into Account

If, then, the surface of the membrane is covered with plates in accordance with the calculation and the membrane in the region between the cathode and the line of the knife edges is made horizontal again, one obtains the field pattern in the first approximation. Using Eq (7), it is then possible to determine the upper limit for the current in the first approximation, i.e.  $\delta_1 \max$ .

This process can be continued to obtain the required current. Lines of equal curvature were determined automatically using the installation whose photograph is shown in Figure 4. Figure 3 shows a potential distribution and electron trajectories in the third approximation in a gun giving a ribbon-shape electron beam. Figure 10 gives the current-density distribution showing the successive approximations (1 is the upper limit for the current density  $\delta_0 \max$ , 2 is the current density in the zero-order approximation  $\delta_0$ , 3 is the current density in

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UTKIN, K. G., Cand Phys-Math Sci -- (diss) "Research into electronic-optical systems with high emission current density by the method of modelling on a resinous membrane." Leningrad, 1960. 13 pp; (Academy of Sciences USSR, Leningrad Physics-Technology Inst); 150 copies; price not given; (KL, 26-60, 130)

S/194/61/000/007/031/079  
D201/D305

AUTHOR: Utkin, K.G.

TITLE: Determination of emission current from cathodes with a small radius of curvature by the rubber membrane method

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 7, 1961, 2, abstract 7 G7 (Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t, 1960, no. 3, 72-78)

TEXT: A description is given of the method of determining the total current and of the current density at the surface of the cathodes with small radius of curvature. The influence of the space charge has been taken into account by means of changing it into the surface charge at a region near to the cathode. Using a rubber membrane the problem was solved of the plane diode with a cylindrical emitting surface. The volt-ampere characteristic obtained by modeling was very nearly the same as that obtained from experimental

Card 1/2

Determination of emission current...

S/194/61/000/007/031/079  
D201/D305

diodes. The final result depends little on working formulae if these are used in first approximations. 7 references. [Abstracter's note: Complete translation]

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Card 2/2

S/194/61/000/012/065/097  
D201/D303

AUTHORS: Serebrov, L. A., Fridrikhov, S. A. and Utkin, K. G.  
TITLE: The character of the electric field in electron storage tubes with cylindrical and oval collectors  
PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 12, 1961, 38-39, abstract 12G243 (Nauchno-tekhn. inform. byul. Leningr. politekhn. in-ta, 1960, no. 9, 108-113)

TEXT: The electrolytic tank simulator method was used to determine the magnitude and distribution of the electric field intensity in the dielectric target - correcting ring - collector space. The electrodes, made to a scale of 1:3, corresponded in dimensions to typical storage cathode ray tubes. Changing over from the cylindrical to the oval shape of the collector does not influence the field configuration to a great extent. In the absence of the correcting ring the target diameter is substantially uneven, the coefficient of inhomogeneity in the vicinity of e.g. 10% equipotential line

Card 1/2

The character of ...

S/194/61/000/012/065/097  
D201/D303

reaching the value of the order of 4. Introduction of the ring at the collector in the form of a conducting coating at the tube walls, makes it possible to straighten the field in the region of the 10% equipotential line only. At greater distances from the target the field remains substantially distorted. Straightening the field by increasing the collector-to-target distance is accompanied by a considerable weakening of the field intensity and is not, therefore, recommended. The experimentally obtained field maps for various shapes of electrodes are given. 3 references. [Abstractor's note: Complete translation.]

Card 2/2

S/057/62/032/006/010/022  
B108/B102

9.3120  
AUTHORS:

Utkin, K. G., and Toporkov, S. A.

TITLE:

Determination of the emission current in axisymmetric systems with the aid of a rubber membrane

PERIODICAL:

Zhurnal tekhnicheskoy fiziki, v. 32, no. 6, 1962, 706 - 712

TEXT: The use of the rubber membrane method in determining the potential distribution and the current from the cathode surface in axisymmetric systems is proposed. This method is usually applied to plane problems. If however, the boundary conditions of the membrane are properly chosen this method is suitable also to simulate axisymmetric problems. If a pressure  $p = \frac{\tau}{r} \frac{\partial h}{\partial r}$  is applied to the membrane it will simulate the potential distribution without space charge. The problem with a space charge can be rendered by adding a linear term to the expression for the pressure on the membrane.  $\tau$  is the tension of the membrane,  $h$  is the deviation of the membrane surface from equilibrium. Calculations were performed for cylindrical diodes. The results are in good agreement with the results.

Card 1/2

Determination of the ...

S/057/62/032/006/010/022  
B108/B102

of measurements on real objects. There are 7 figures and 1 table. ✓B

ASSOCIATION: Leningradskiy politekhnicheskii institut im. M. I. Kalinina  
(Leningrad Polytechnic Institute imeni M. I. Kalinin)

SUBMITTED: July 17, 1961

Card 2/2

YELISEYEV, Nikolay Aleksandrovich; GORBUNOV, Grigoriy Ivanovich;  
YELISEYEV, Erik Nikolayevich; MASLENIKOV, Vladimir Alekseyevich;  
UTKIN, Konstantin Nikolayevich [deceased]; POLKANOV, A.A.,  
akademik, glavnyy red.; YELISEYEV, N.A., otv.red.; DOLMATOV, P.S.,  
red.izd-va; BLEYKH, E. Yu., tekhn.red.

[Ultrabasic and basic intrusions in Pechenga District; geology  
and structure, petrography, minerals and ores, geochemistry of  
nickel] Ul'traosnovnye i osnovnye intruzii Pechengi; geologiya  
i struktura petrografiia, mineraly i rudy, geokhimiia nikelia.  
Moskva, Izd-vo Akad.nauk SSSR. 1961. 357 p. (Akademiia nauk  
SSSR. Laboratoriia geologii dokembriia, Trudy, no.10)

(MIRA 14:3)

1. Chlen-korrespondent AN SSSR (for Yeliseyev).  
(Pechenga District—Geology)



ZILIST, Petr Sigizmundovich; KAZACHKOV, David L'vovich; DVORKIN,  
A.L., inzh., retsenzent; UTKIN, K.V., inzh., retsenzent  
VERDNIKOV, Ya.V., nauchn. red.; NIKITINA, M.I., red.

[Overall mechanization of planning and designing operations  
in shipbuilding] Kompleksnaya mekhanizatsiya proektno-  
konstruktorskikh rabot v sudostroenii. Leningrad, Sudc-  
stroenie, 1965. 315 p. (MIRA 18:12)

MINI, L.

results of the All-Union competitions in applied sports for  
firemen. Pozh. delo No. 2:22-23 F '61. (MINI, L.)  
(Firemen--education and training)

UTKIN, L. A.

N. I. Sharapov. *Lekarstvennyye rasteniya Chelyabinskoy oblasti*  
(Medicinal Plants of Chelyabinsk Oblast). Chelyabinsk. Chelyabgiz. 1951.  
128 pages with illustrations.

U-5235

UTKIN, L.A.

Life and work of N.A. Bush; on the 15th anniversary of his death.  
Izv.Vses.geog.ob-va 88 no.6:541-544 N-D '56. (MLRA 10:2)

(Bush, Nikolai Adol'fovich, 1869-1941)

UTKIN, I.A.; GAMMERMAN, A.F.; NEVSKIY, V.A.; SOKOLOV, V.S., otvetstvennyy  
redaktor; LEBEDEV, D.V., otvetstvennyy redaktor; TARASOV, G.A.,  
redaktor izdatel'stva; TVERITINOVA, K.S., tekhnicheskiy redaktor

[Bibliography on medicinal plants; an index to Russian literature.  
Manuscripts from the 17th to the 19th century, printed works from  
1732 to 1954] Bibliografiia po lekarstvennym rasteniiam; ukazatel'  
otchestvennoi literatury. Rukopisi XVII-XIX vv., pechatnye izdaniia  
1732-1954 gg. Moskva, Izd-vo Akad. nauk SSSR, 1957. 724 p.  
(Bibliography--Botany, Medical) (MLRA 10:4)

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[Concise botanical Russian-Latin dictionary] Kratkii botanicheskii russko-latinskii slovar'. Moskva, Vses. botanicheskoe ob-vo, 1961. 230 p. (MIRA 17:4)

UTKIN, L.A., prof.

"Principal medicinal substances of Chinese medicine" by F.I.Ibragimov,  
V.S.Ibragimov. Reviewed by L.A.Utkin. Farm. 1 toks. 24 no.5:633-  
634 S-0 '61. (MIRA 14:10)  
(CHINA---MATERIA MEDICA) (IBRAGIMOV, F.I.)  
(IBRAGIMOV, V.S.)

UTKIN, L.A.

"Useful plants of western Siberia" by V.I. Vereshchagina,  
K.A. Sobolevskaja, A.I. Iakubova. Reviewed by L.A. Utkin.  
Izv. Sib. otd. AN SSSR no.2:127-128 '62. (MIRA 16:10)



TURUTA, N.U., kandidat tekhnicheskikh nauk; UTKIN, L.A., redaktor; KEL'-  
NIK, V.P., redaktor; KOVALENKO, N.I., tekhnicheskii redaktor.

[Drilling and blasting operations; a textbook for mine foremen]  
Buro-vzryvnye raboty; uchebnoe posobie dlia shkol i kursov masterov. Izd. 2-e, perer. i dop. Sverdlovsk, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1954. 600 p.[Microfilm]  
(Blasting) (Rock drills) (MLRA 8:2)

LYKHIN, Pavel Aleksandrovich; UTKIN, L.A., red.; TSYMBALIST, N.N., red.  
izd-va; ZEP, Ye.M., tekhn., red.

[Using drilling and blasting techniques in intensifying horizontal  
mining] Intensifikatsiia provedeniia gorizonta'l'nykh gornykh vyrabo-  
tok buro-vzryvnykh sposobom. Sverdlovsk, Gos. nauchno-tekhn. izd-vo  
lit-ry po chernoi i tsvetnoi metallurgii, Sverdlovskoe otd-nie,  
1957. 137 p. (MIRA 11:3)  
(Mining engineering)

ILIVITSKIY, A.A.; UTKIN, L.A.; PESHKOV, V.Ya.

Underground mining of the Blagodat' mountain deposits. Biul.  
TSNIICHM no.23:36-38 '57. (MIRA 11:2)

1.Ural'skiy filial AN SSSR (for Ilivitskiy, Utkin). 2.Goroblago-  
datskoye rudoupravleniye (for Peshkov).  
(Blagodat Mountain--Iron mines and mining)

07 KIN. A. A.  
GARTENFLYUS, V.S., inzh.; ILIVITSKIY, A.A., kand. techn. nauk. USTIN, L.A.,  
inzh.

Underground mining of Lebiashin iron ore deposits. Hm.1. TENICHOM  
no.2:1-5 '58. (MIRA 11:5)  
(Nizhniy Tagil--Iron mines and mining)

UTKIN, L.A., gornyy inzhener

Improvement of blasting operations in underground ore breaking  
by borehole. Trudy Gor.-geol. inst. UFAI SSSR no.31:171-193  
'58. (MIRA 12:9)

(Mining engineering)

UTKIN, L.A.

Effectiveness of short-delay blasting in underground breaking-off  
of ores. Trudy Gor.-geol.inst.UFAN SSSR no.41:65-75 '59.

(MIRA 13:5)

(Mining engineering)

UTKIN, L. A., Cand Tech Sci -- (diss) "Means of improving explosion operations in underground breaking down of ore with boring charges in the iron mines of the Tagilo-Kushvinskiy rayon." Sverdlovsk, 1960. 15 pp; (Ural'skiy Affiliate of the Academy of Sciences USSR, Mining Geology Inst); 150 copies; price not given; (KL, 22-60, 140)

UTKIN, L. A.

PHASE I BOOK EXPLOITATION

SOV/5298

Akademiya nauk SSSR. Ural'skiy filial. Gorno-geologicheskii institut.

Podzemnaya razrabotka rudnykh mestorozhdeniy (Underground Exploitation of Ore Deposits) Sverdlovsk [1960] 165 p. (Series: Its: Trudy, vyp. 54) 1,000 copies printed.

Editorial Board: K. V. Kochnev, Professor, Doctor of Technical Sciences; L. Ye. Zubrilov, Candidate of Technical Sciences; A. A. Ilivitskiy, Candidate of Technical Sciences. Ed. of Publishing House: M. S. Ebergardt; Tech. Ed.: N. F. Seredkina.

PURPOSE: This publication is intended for engineering and technical personnel in the mining industry.

COVERAGE: This is a collection of 22 articles by different authors on problems of underground exploitation of large massive ore deposits in the Urals. The articles are based on studies carried out in the Laboratory for the Exploitation of Ore Deposits of the Gorno-geologicheskii institut UFAN SSSR (Institute of Mining

Card 1/6



Underground Exploitation (Cont.)

SOV/5298

Geology, Ural Branch AS USSR), between 1958-1959. No personalities are mentioned. Most of the articles are accompanied by references.

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~~Card 2/6~~

Underground Exploitation (Cont.)

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~~Card 5/6~~

ZUBRILLOV, L.Ye.; ILIVITSKIY, A.A.; UTKIN, L.A.; SHUL'MIN, B.M.

Main directions in improving the technology of underground mining  
of thick ore deposits in the Urals. Trudy Gor.-geol.inst.UFAN SSSR  
no.54:5-12 '60. (MIRA 14:6)  
(Ural Mountains--Mines and mineral resources)

S/169/61/000/C12/010/039  
D228/D305

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AUTHOR:

Utkin, L. A.

TITLE:

The study of the seismic effect of powerful explosions

PERIODICAL:

Referativnyy zhurnal, Geofizika, no. 12, 1961,  
18, abstract 12A183 (Tr. Gorno-geol. inst.  
Ural'skiy fil. AN SSSR, 1960, no. 54, 125-130)

TEXT: The seismic effect of powerful explosions produced during the underground exploitation of deposits was studied. Determination of the seismic hazard of powerful explosions is decided on the basis of the measurement of stresses from the massif's rate of vibration and the measurement of the pressure in the objects under consideration. The following methods may be used for this: visual observations, the acoustic (ultrasonic) method, the tensometric method, the piezoelectric method, and the microanalytical investigation of the vibrations of structures

Card 1/3

S/169/61/000/012/010/049  
D228/D305

The study of the ..

(MIVS). Visual observations are based on the installation of special slabs of friable material in the zone affected by the explosion. After the explosions, these slabs are studied for the disposition of cracks and the measurement of their amount in relation to the magnitude of the charge and the distance from the explosion point, etc. The acoustic method may be employed for studying the fracturing of a rock massif by measuring the propagational speed of ultrasound. The tensometric, piezo electric, and MIVS methods are generally similar, the difference between them consisting of the use of different emitter instruments (tensometers, piezoelements, seismographs). The MIVS method, in which the recording of oscillations is simultaneously by 6 - 12 receivers situated at different points, has been verified the most practical. The recording is made by means of oscillographs of the POB-12 (POB-12) or POB-4 (POB-4) type. In processing the experimental data, the following parameters are calculated: the maximum amplitude of the vibration rate, the maximum amplitude of the ground displacement.

Card 2/3

The study of the...

S/169/61/000/012/010/039  
D228/D305

maximum relative deformation, the maximum stress, and the radius  
of the seismically hazardous zone. [Abstracter's note: Com  
plete translation.]

Card 3/3

UTKIN, L G

PANYSHEVA, Lidiya Vasil'yevna, kand.veterin.nauk; LIPIN, V.A., kand.veterin.nauk; TARASOV, Vasil'y Romanovich, kand.veterin.nauk; LIPINA, Yelena Ivanovna, kand.veterin.nauk; UTKIN, Leonid Georgiyevich, kand.biol.nauk; DOMRACHEV, G.V., prof., doktor veterin.nauk, ~~za-~~sluzhenyy deyatel' nauki [deceased], red.; DIKAREV, P.I., red.; GOR'KOVA, Z.D., tekhn.red.

[Diseases of dogs (noninfectious); a practical manual for veterinarians and veterinary technicians] Bolezni sobak (nezaraznye); prakticheskoe rukovodstvo dlia veterinarnykh vrachei i veterinarnykh tekhnikov. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1958.

445 p.

(MIRA 12:4)

1. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk im. V.I.Lenina (for Domrachev).

(Dogs--Diseases)

UTKIN, L. G. (Co-author)

See: BELYAYEV, D. K.

Belyayev, D. K. and Utkin, L. G. "The effect of reduced length of daylight on the period of time needed for ripening of fox fur," Karakulevodstvo i zverovodstvo, 1949, No. 2, p. 59-62.

SO: U-3736, 21 May 53, (Letopis 'Zhurnal 'nykh Statey, No. 17, 1949).



UTKIN, L.G.

"Morphological and Physicochemical Properties of the Blood of Fur-Bearing Animals." Cand Biol Sci, Moscow Veterinary Acad, Min Higher Education USSR, Moscow, 1955. (L, No 14, Apr 5)

30: Sum.No. 564, 2 Nov 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (26).

UTKIN, L. G.

UTKIN, L. G.: "Morphological and physicochemical properties of the blood of fur-bearing animals." Inst of Animal Morphology imeni A. N. Severtsov, Acad Sci USSR. Moscow, 1956. (Dissertation for the Degree of Candidate in Biological Sciences)

Knizhnaya letopis', No 39, 1956, Moscow.

SOV/ 20-120-2-62/63

AUTHORS: Bayevskiy, Yu. B., Belyayev, D. K., Utkir, L. G.

TITLE: Observations on Intraovarian Eggs of the Sable (*Mustel putorius* nad yaichnikovymi yaytsami sobolya)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 2, pp. 439 - 440 (USSR)

ABSTRACT: In publications there are descriptions of mature eggs of several species of mammals (References 3-8). There is only an imperfect description of the egg of the sable (Reference 10). A female sable in heat was operated on August 2, 1956, and had 3 intact follicles in its right ovary. 2 Graaf vesicles contained rather grown eggs (figure 1 b and c) in a stage near to deliverance. The sizes of the follicles and of the eggs are given. In 300 times magnification the egg protoplasm looked coarse-grained and rather frothy. It filled the whole space of the zona pellucida so that no peri-vitellin space is visible in this stage. The nuclei of separate eggs and the differences between them are described. The zona pellucida is

Card 1/2

Observations on Intraovarian Eggs of the Sable

301/26-126-2-62/63

surrounded by a radiant crown (corona radiata). Further microscopical details are described. According to the state of the eggs no. 2 and no. 3 it could be supposed that they are in the preparatory stage for the first maturity division. As is well known in some Carnivora (dog, reference 12-14; fox, reference 15) the first polar body is eliminated after ovulation. In a species related to the sable, the polecat (Reference 11), the egg is released during the metaphase of the second maturity division. With the sable the case seems to be similar. There are 15 references, 1 of which is Soviet.

ASSOCIATION: Institut morfologii zhivotnykh im. A. N. Severtsova Akademii nauk SSSR (Institute of Animal Morphology imeni A. N. Severtsov AS USSR), Vsesoyuznaya nauchno-issledovatel'skaya laboratoriya pushnogo zverovodstva (All-Union Scientific Research Laboratory for the Breeding of Fur-Bearing Animals)

PRESENTED: August 24, 1957, by I. I. Shmal'gauzen, Member, Academy of Sciences, USSR

SUBMITTED: August 13, 1957

Card 2/2 1. Sables--Reproduction 2. Uterus--Physiology 3. Eggs  
--Production

BELYAYEV, D.K., kand.biologicheskikh nauk; UTKIN, L.G., kand.biologicheskikh nauk

Some data on breeding sables in captivity. Nauch. trudy  
Nauch.-issl. inst. push. zver. i krol. 5:40-70 '60. (MIRA 15:3)  
(Sables)

BELYAYEV, D.K.; UTKIN, L.G.

Problems of obtaining higher fecundity of sables in captivity.

Nauch. trudy Nauch.-issl. inst. push. zver. i krol. 5:95-115  
'60. (MIRA 15:3)

(Sables)

BELYAYEV, D.K.; UTKIN, L.G.; KULICHKOV, B.A.

Effect of the light factor in the development of fur cover in  
mink (*Mustela vison* Shr.). Izv. SO AN SSSR no.4 Ser. biol.-med.  
nauk no.1:91-100 '64. (MIRA 17:11)

1. Institut tsitologii i genetiki Sibirskogo otdeleniya AN SSSR,  
Novosibirsk.

VAGIN, Ye.A., kand. sel'khoz. nauk; KVAPIL', A.I., kand. sel'khoz. nauk[deceased]; KLETSKIN, P.T., kand. sel'khoz. nauk; UTKIN, L.G., kand. biol. nauk. Prinimal ucha-stiye KLADOVSHCHIKOV, V.F., kand. sel'khoz. nauk; ZAVARSKIY, A.I., red.

[Fur farming and rabbit husbandry] Pushnoe zverovodstvo i krolikovodstvo. Moskva, Kolos, 1965. 286 p. (MIRA 18:7)

1. Nauchno-issledovatel'skiy institut pushnogo zverovodstva i krolikovodstva (for all except Zavorskiy).



UTKIN, L. L.

"Narodnye lekarstvennye rasteniya Sibiri: materialy k izucheniyu narodnoi meditsiny,  
Gosud. Nauchno Teknich. Izd. Moscow-Leningrad, 1931, 104 pp.

KRYLOV, A.; UTKIN, L.

Training stations. Pozh. delo 9 no.9:19 S '63. (MIRA 16:10)

(Fire prevention—Study and teaching)

16

Preparing peptone. L. M. Ubbin. *Dynk. Nauch. Issledovatel. Khim.-Farm. Inst.*  
1930, 11.—Peptone is prepd. from by-products of org. preps. by fermenting and  
hydrolyzing with pepsin and tripsin. Thus by-products from the prepn. of moulin  
and spermin yield 13-25% of a high-grade peptone. A. A. Boehling

1ST AND 2ND ORDERS																									
PROCESSES AND PROPERTIES INDEX																									
<p>BC</p> <p>B-II-2</p> <p>Peptone. L. M. Uryin (Bull. Nauch. Issledov. Khim. Farm. Inst., 1951, 236-237).—A good peptone can be obtained from by-products of the prep. of spermine, and a less satisfactory product from those of the prep. of insulin. The yield is 24-30% of the dry residue. Treatment with pepsin or, preferably, fresh mucous membrane from hog's stomach or its extract is applied in presence of <math>H_3PO_4</math> or of <math>H_2SO_4</math>, followed by <math>Ba(OH)_2</math>. Ch. Ann.</p>																									
<p>ASH 55 A METALLURGICAL LITERATURE CLASSIFICATION</p>																									

1ST AND 2ND GROUPS PROCESSES AND PROPERTIES INDEX

CA

Peptone. L. M. Ushin. Syull. Nauch.-Issledovatel. Khim.-Farm. Inst. 1931. 228-32; Chem. Zvest. 1932, 1, 1655.—A good quality of peptone can be prepd. by peptic digestion of protein residues from the manuf. of spermins, and a product of inferior quality from waste in insulin prepn. The peptone yield is 24-30% of the dried residue, and depends upon the fineness of the material. The treatment with pepsin can take place in the presence of either  $H_2PO_4$  or  $H_2SO_4$ ; in the latter case treatment with  $Ba(OH)_2$  must follow. The use of fresh mucous membrane from hog stomach or its ext. is recommended in preference to pepsin. Trypsin is not suitable.

M. G. Moore

AA

COMMON ELEMENTS

ASACSLA METALLURGICAL LITERATURE CLASSIFICATION

**A new microorganism of the Acetobacter group.** L. M. Utkin. *Microbiology* (U. S. S. R.) 6, 421-34 (in English 433-4) (1937).—A new species of the genus *Acetobacter* *Reijnders*, for which the name *Acetobacter ketogenus* is proposed, was isolated from "kombucha" ("tea kvass"). Its morphological and cultural characteristics are described. The organism is capable of consuming inorg. N ( $\text{NH}_4\text{H}_2\text{PO}_4$ ) in the presence of a small amt. of org. N (glycine, *dl*-alanine and *L*-asparagine) alone cannot serve as a single source of N.  $\text{EtOH}$  and  $\text{BuOH}$  are oxidized only if some glucose is present with the peptone. In 2% concn.  $\text{EtOH}$  is 91.5% oxidized, in 8% is 25.6% oxidized. Above 8% glucose no growth was observed.  $\text{MeOH}$  was not oxidized. The organism is capable of utilizing the energy of secondary -OH group oxidation of polyal. alcs. for growth. A culture of 200 ml. of soln. contg. 9.5 g. glycerol, 1 g. peptone and 2.5 ml.  $\text{N AcOH}$  at an initial  $\text{pH}$  of 5.0 yielded 32% dihydroxyacetone in 20 days (91.5% in 14 days) at a final  $\text{pH}$  of 3.30. A soln. of 100 g. of sorbitol in 2 l. of 10% yeast liquor, inoculated with 2% of a 2-day-old culture of the same soln. at a  $\text{pH}$  of 5.3 at 25° with a 2.5 cm. layer gave 81.5% sorbose in 4 days (70% in 3 days, 15.5% in 2 days). A 7% soln. of sorbitol

in 6% yeast water under the same conditions gave 84.8 g. (69%) of sorbose in 4 days and 102.2 g. (73%) in 5 days, compared with *B. gluconum* which yields 70% sorbose in 30 days. At a  $\text{pH}$  of 4.7, 200 ml. of yeast water, 10 g. of sorbitol and 2 ml. of  $\text{N AcOH}$  in a 3.5 cm. layer gave 80.3, 82.3, 84.0 and 84.0% of sorbose in 5, 6, 9 and 12 days, resp. A soln. of 5% glucose with 0.2%  $\text{NH}_4\text{H}_2\text{PO}_4$ , 0.1%  $\text{K}_2\text{H}_2\text{PO}_4$ , and 0.05%  $\text{MgSO}_4$  in 10% yeast water, initial  $\text{pH}$  of 5.0, gave 17.6, 92.1, 88.6 and 84.8% of gluconic acid in 2, 4, 8 and 25 days, resp., with a final  $\text{pH}$  of 2.1. A 3% soln. of  $\text{Ca gluconate}$  at a  $\text{pH}$  of 5.0 with 0.5% peptone gave 23, 25, 56 and 76% of 5-ketogluconic acid in 5, 6, 10 and 17 days, resp., with a final  $\text{pH}$  of 3.78. With concns. of glucose of 5, 10, 20 and 25% the percentage gluconic acid obtained amounted to 93.2, 98.1, 91.7 and 46.6% of the theory. Above 25% no growth was observed. The secondary oxidation of gluconic acid results in lower yields of this compd. after the 4th day. The yield of 5-ketogluconic acid does not correspond to the reducing power of the soln. (cf. Bernhauer, *et al.*, C. A. 30, 10653). The film formed by the organism on the surface of the nutrient soln. plays a great role in the oxidation process; its intentional destruction by shaking once daily resulted in the oxidation of glycerol to 4.5 and 29.5% in 2 and 7 days, resp., while controls showed 15 and 84% oxidation in the same time.

S. A. Karjala

CP

The biological oxidation of sorbitol. I. M. Ulan.  
Microbiology (U. S. S. R.) 6, 1072(1967); *Chem. Zvest.*  
1968, 1, 3224. The sorbitol yields quoted by Kreshing  
(preceding abstr.) are calc'd. (as sorbitol) from the re-  
ducing power of the fermented liquid. The actual sor-  
bitol yields are less. M. G. Moore

ASB-55A METALLURGICAL LITERATURE CLASSIFICATION

*ca*

10

Decomposition of the bisulfite compound of ethydrone  
acetone. L. M. Utkin, Russ. 56,223, Dec. 31, 1939.  
The bisulfite compd. is treated with 1 mol. of  $\text{BaCl}_2$ , then  
with 1 mol.  $\text{BaCO}_3$ .

ASB-SLA DETAIL LOGICAL LITERATURE CLASSIFICATION

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CALISTONE  
CALO R I

ZA MI L I S O H U T W N A B C D E F G H I J K L M N O P Q R S T U V X Y Z



The molecular compound of dihydroxyacetone with sodium chloride L. M. Vukin *Doklady Akad. Nauk SSSR* (1939).—Evapn. *ex vacuo* at 40° of an aq. soln. contg. 4.5 parts dihydroxyacetone and 1 part NaCl deposits a mod. addn. compd.,  $\text{NaCl} \cdot 2\text{C}_3\text{H}_7\text{O}_3$ , square prisms or hexagonal plates, m. 104.5° (decompn.). It is sol. in  $\text{H}_2\text{O}$ ,  $\text{MeOH}$  and  $\text{EtOH}$ , and sparingly sol. in strong  $\text{EtOH}$  and  $\text{Me}_2\text{CO}$ . H. Priestley

BIOCHEM. LAB. OF THE ALL UNION CHEM. AND PHARMACEUTICAL RESEARCH  
INST. IM. ORSZHONIKIDZE, MOSCOW

10

ca

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

The preparation of crystalline dihydroxyacetone. L. M. Utkin (Inst. Pharmaceutical Chemistry, Moscow). *Biot. Khim.* 11, 90-104(1946).—After fermentation of the glycerol by ketogenic bacteria,  $\text{NaHSO}_3$  is added before the soln. is evapd. The bisulfite compd. of dihydroxyacetone (I) is decompd. with  $\text{BaCl}_2 \cdot \text{BaCO}_3$ . The addn. compd. of  $\text{NaCl}$  and I remains in soln. After evapn. in vacuo, the residue is dried at a low temp., and I obtained in 75-80% yield by extrn. with dry acetone in a Soxhlet app. H. Priestley

OPEN

COMMON ELEMENTS

ASB-51A METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CA

11C

Physiology of penicillin-forming molds. I. Penicillin formation by *Penicillium crustosum* in mediums containing glucose. L. M. Utkin (Inst. Pharmacology, Chemotherapy, and Pharmaceutical Chem., Moscow). *Mikrobiologiya* 15, 211-21 (1946).—A little penicillin (I) is formed by *P. crustosum* (II) on Czapek-Dox medium (III) contg. 4% glucose. More  $\text{NaNO}_3$  stimulates formation of I; at 4% glucose II uses more nitrate N than III contains. Yeast water (or autolysate) inhibits conversion of glucose to gluconic acid; the inhibitor (evidently also present in peptone from corn. gelatin) can be removed by adsorption on  $\text{Ca}_3(\text{PO}_4)_2$ . It is not present in peptones from meat or from fibrinogen. Nitrate N is essential and is only partially replaceable by org. N; the inorg. salt serves to neutralize acidity as its N is used up. Max. formation of I coincides with degradation of mycelium proteins as C is used up from the medium. Julian F. Smith

ASH 55.4 METALLURGICAL LITERATURE CLASSIFICATION

UTKIN, I. M.

LC

40740

USSR/Medicine - Penicillin  
Medicine - Fungi - Culture  
Jun 1946

"Studies on the Physiology of Penicillin-producing  
Molds," I. M. Utkin, Biochemical Laboratory, Institute  
of Pharmacology, Chemotherapy, and Pharmaceutical  
Chemistry, Academy of Medical Sciences of USSR, 12 pp

"Microbiologiya" Vol XV, No 3

Production of penicillin by *Penicillium crustaceum* on  
glucose media is studied. *P. crustaceum* produces  
small amounts of penicillin when grown on Czapek-Dox  
synthetic medium containing 4% glucose; increasing the  
sodium nitrate content in the medium improves produc-  
tion; in the presence of glucose the mold consumes  
40740

LC  
USSR/Medicine - Penicillin (Contd) Jun 1946

more nitrate nitrogen than contained in the medium.  
Addition of yeast-water and yeast-autolysate to the  
medium in quantities corresponding to 50 milligrams  
total nitrogen per one 100 milliliters of medium  
stimulates production by the mold, and activity reaches  
25-30 Oxford units per 1 milliliter. Production in  
other media containing glucose is also investigated.

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CA

Nutrient medium for growing molds for the production of penicillin. L. M. Utkin. U.S.S.R. 68,447, May 31, 1972. A nutrient medium for penicillin molds is made of autolyzate of pressed or beer yeast combined with mineral salts and carbohydrates of the Czapek-Dox medium. To hasten the filtration of the yeast autolyzate, starch is hydrolyzed in  $H_2SO_4$  to dextrins and glucose, and to the soln. thus obtained is added the yeast autolyzate. The mixt. is neutralized with chalk or lime, filtered, and mineral salts are added to the filtrate. M. Hoesch

ASB-55A METALLURGICAL LITERATURE CLASSIFICATION

GROUPS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

SECTION: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

REMARKS: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

UTKIN, L. M.

USSR/Chemistry - Carbohydrates  
Chemistry - Ketoses

Jul 49

PA 54/49711

"A New Carbohydrate With a Forged Carbon Chain," L. M. Utkin, All-Union Sci Res Inst of Chemtophar, 4 pp

"Dok Ak Nauk SSSR" Vol LXVII, No 2

Formation of azyonic from the carbohydrate found by the process described proves the latter to be structurally like ketohexose with a forged carbon chain (4-oxomethylketopentose) and corroborates the assumption on the mechanism of condensing diacycetone in alkaline media. The name "dendrotose" is suggested for ketohexose, leaving the name "dendrose" for the

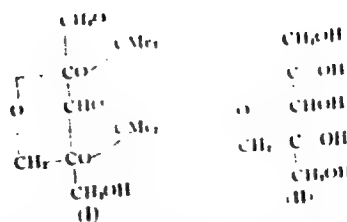
54/49711

USSR/Chemistry - Carbohydrates (Contd) : Jul 49

corresponding aldohexose. Submitted by Acad V. M. Rodionov 25 Apr 49.

54/49711

**New branched-chain carbohydrate.** L. M. Pitkin.  
*Doklady Akad. Nauk S.S.S.R.* 67, 301 4(1949).—  
CO(CH<sub>2</sub>OH)<sub>4</sub> (5%) soln. in 0.05 N NaOH let stand 4  
hrs. at 25°, neutralized with H<sub>2</sub>SO<sub>4</sub>, concentrated *in vacuo*,  
dried, and acetonated in the presence of H<sub>2</sub>SO<sub>4</sub>, gave 45%  
C<sub>12</sub>H<sub>22</sub>O<sub>11</sub>, b<sub>p</sub> 118–30°, which on leaching with petr. ether  
gave 10% of a solid fraction, m. 81°, giving a violet color  
with Selivanov reagent and reducing Fehling soln. only  
after acidic hydrolysis; the product yields a phenylglyoxal  
C<sub>12</sub>H<sub>22</sub>O<sub>11</sub>, m. 155°, after hydrolysis with 0.1 N HCl.  
The yield of the product is almost doubled if acetonation  
is followed by benzoylation in pyridine, which yields the  
benzoyldiacetone, prisms, m. 121° (from F<sub>1</sub>OH),  
giving with NaOMe 100% of the above diacetonehexose.  
Resolution by means of a *Penicillium* fungus, followed by  
acetonation as above, gave the diacetone deriv., m. 80°,  
[α]<sub>D</sub><sup>20</sup> = 121 (Me<sub>2</sub>CO), and the phenylglyoxal derived  
from this, m. 104°, [α]<sub>D</sub><sup>20</sup> = 64.5° (Me<sub>2</sub>CO); oxidation by  
KMnO<sub>4</sub> in alkali gave diacetoneketohexonic acid, C<sub>12</sub>H<sub>20</sub>O<sub>10</sub>,  
m. 91–1°, [α]<sub>D</sub><sup>20</sup> = 122° (di form, m. 136–7°). Since heat-  
ing with water 1.5 hrs. at 100° failed to show ability to  
react with osone in aq. soln., the product was assigned  
the structure I. The *trans*-hexonic acid was obtained



only as a syrup from the optically active deriv., but the *di*-  
form, obtained in 50% yield, m. 121°. Hydrolysis of  
the benzoyldiacetonyl deriv. by hot aq. AcOH gives  
the benzoyldiacetone, which reduces Fehling  
soln., i.e. the MeC group on the reducing group is lost  
first; the product forms prisms, m. 121–2°, [α]<sub>D</sub><sup>20</sup> = 117°  
(in Me<sub>2</sub>CO) (di-form, m. 107–8°). Oxidation by HIO<sub>4</sub>  
gave CHO and benzoyldiacetoneipronic acid, lactone,  
needles, m. 116°, [α]<sub>D</sub><sup>20</sup> = 31.1° (Me<sub>2</sub>CO) (di-form, m.  
97–8°), which heated with aq. KOH gave the alk. anal.  
K acetoneipronic acid, crystals, [α]<sub>D</sub><sup>20</sup> = 33.5° (H<sub>2</sub>O); the latter  
after treatment with HCl, boiling with chalk, and pptn.  
of the filtrate with F<sub>1</sub>OH gave a *trans*-acid phenylglyoxal-  
ppt., from which was obtained *trans*-acid phenylglyoxal-  
zide, m. 127°, [α]<sub>D</sub><sup>20</sup> = 26.1° (H<sub>2</sub>O); (di-form, m. 140-  
40.5°). The new ketohexose (II) is provisionally named  
*dendroketose*.  
G. M. Kozlovskii

77C

C.A.

Homogentisinic acid in the metabolism of molds. I. M. Utkin (Pharm.-Chem. Inst., Moscow). *Biokhimiya* 15, 330-3(1950).—Although homogentisinic acid, 2,8-dihydroxy-phenylacetic acid, (I), has been regarded as an intermediate product in the decompn. of the aromatic amino acids phenylalanine and tyrosine in the animal organism, evidence for this view had been obtained only in rare pathol. cases and not in normal metabolic processes. The molds *Aspergillus niger*, *Penicillium chrysogenum*, and *P. notatum* when grown for 9-13 days on a synthetic medium (4% glucose, 0.2%  $\text{KH}_2\text{PO}_4$ , 0.1%  $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ ), with 0.5% tyrosine, yielded 6-21% of I (based on the tyrosine content). I is, therefore, a normal intermediate decompn. product of tyrosine in the metabolism of molds. II. Frisley



A 4

B.A.

Production of trimethylene glycol from glycerol by fermentation.  
I. M. Litkin and R. E. Topolstein (*Microbiologia*, 1950, 10, 116-120).  
Attempts to produce trimethylene glycol from glycerol by  
*Acetobacter* gave a yield of only 40%, and the process is probably not  
of practical interest. The yield was increased by addition of peptone  
or yeast water to the culture medium. D. H. SWYTH

UTKIN, L. H.

"Investigation of a New Hexose Having a Branched Carbon Chain and Its Acetone Derivatives." Sub 18 Apr 52, All-Union Sci Res Chemico-pharmaceutical Institute Sergo Ordzhonikidze, Ministry of Health USSR.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

USSR

New alkaloid from the plant Heliotropium supinum.  
S. I. Daurova, G. P. Ilegshikov, and Ju. M. Ustin (S. Ilegshikov). All-Union Chem. J. (1955, 1956).  
Dokl. Akad. Nauk S.S.S.R. 93, 65-66 (1953); cf. C.A. 47, 7512g.—The mixt. of alkaloids obtained after the recovery of supinidine (cf. C.A. 44, 3494i) was taken up in  $\text{CHCl}_3$  and passed over an  $\text{Al}_2\text{O}_3$  column, yielding a filtrate which with picric acid gave a solid picrate. This can be used for seeding the crude mixt. of the alkaloids (with picric acid added) to give crystals of more of the same material. The picrate,  $\text{C}_{17}\text{H}_{19}\text{O}_8\text{N}_2 \cdot \text{C}_6\text{H}_3\text{O}_7\text{N}_3 \cdot \text{H}_2\text{O}$ , m. 97-100°, loses  $\text{H}_2\text{O}$  in vacuo at 80°, yielding a resinous solid of the anhydrous form. The free base, named heliosupine, is an optically inactive oil, which failed to yield crystalline  $\text{HCl}$ ,  $\text{HBr}$ , or  $\text{HI}$  salts. Hydrogenation over Pt resulted in absorption of 3 moles  $\text{H}_2$  yielding an ester of hydroxyheliotridane and  $\text{MeEt} \cdot \text{CHCO}_2\text{H}$ , isolated as picrate, m. 155-7°. Thus the alkaloid is composed of heliotridine esterified at the HO group

in 6-position by angelic or tiglic acid, while its primary HO is esterified by an acid  $\text{C}_{11}\text{H}_{19}\text{O}_2$  (sic). Oxidation of the alkaloid with  $\text{HIO}_4$  indicated that this acid is 2-methyl-4,4-trimethyl-3-oxopentanoic acid; oxidation yielded  $\text{AcCl}$ ,  $\text{Me}_2\text{CO}$ ,  $(\text{COH})_2$ , and angelic acid, as well as heliotridine. The new alkaloid contains a double bond in 1,2-position of the pyrrolizidine ring, thus being different from macrotonine in that it is a suitable starting material for prepa. of macrotonic acid by reductive cleavage. The amount of heliosupine obtained (0.1% content in the plant) was too small for more detailed study. G. M. Kosolapoff

UTKIN, L.M.

✓ Alkaloids of plants of the poppy family. T. F. Platonova, P. S. Massagetov, A. D. Kozlov, and L. M. Utkin (S. Ordzhonikidze All-Union Chem.-Pharm. Sci. Research Inst., Moscow). *Zhur. Obshchei Khim.* 26, 173-80; *J. Gen. Chem. U.S.S.R.* 16, 181-6 (1956) (Engl. translation).—Conventional  $\text{NH}_4\text{OH}(\text{CH}_2\text{Cl})_2$  treatment of 14 kg. dried roots of *Fumaria schleicheri* gave 23 g.  $\text{Et}_2\text{O}$ -sol. alkaloids which were solid and 20 g. noncryst. material, while 17 g. noncryst. material was extr. with  $\text{CHCl}_3$ . Chromatography of the 1st group in  $\text{CHCl}_3$  over  $\text{Al}_2\text{O}_3$  with elution by  $\text{CHCl}_3$ -2% MeOH gave 3 g. protopine, m. 205-6° (from the colorless zone), 0.2 g. tarry material from the orange zone. The yellow zone gave a mixt. which on rechromatographing with elution with  $\text{CHCl}_3$  and MeOH gave 3 g. protopine and 2 g. fumaridine, yellow solid, m. 160-1°,  $\text{C}_{17}\text{H}_{19}\text{O}_4\text{N}_2$ , which has 2 MeO and 2 MeN groups; tartrate, m. 217°; di-HCl salt, m. 213-14°; picrate, m. 204-5°; methiodide, m. 247-8°. The MeOH-sol. fractions yielded 1.2 g. fumaramine,  $\text{C}_{17}\text{H}_{19}\text{O}_4\text{N}_2$ , m. 223-4°, which has 2 N-Me groups; tartrate, m. 200°; HBr salt, m. 258-60°. Similar chromatography of the noncryst. material gave 0.78 g. fumarine,  $\text{C}_{17}\text{H}_{19}\text{O}_4\text{N}$ , m. 180-80° (contains 1 N-Me group) (oxalate, m. 213°; HCl salt, m. 255-7°), some protopine, and 0.3 g. fumariline,  $\text{C}_{17}\text{H}_{19}\text{O}_4\text{N}$ , m. 157-9° (contains 1 N-Me group) (HCl salt, m. 224°; HBr salt, m. 210°). Ultraviolet spectra of the new alkaloids were examd.; fumaramine apparently contains a carbonyl group as does fumaridine; the latter may be the di-Me ether of the former. Similar treatment of roots of *F. micrantha* yielded protopine, fumaramine, and unidentified material. Roots of *F. vaillantii* gave protopine, fumaridine, and the colorless chromatographic zone yielded

chem 4

Ys

PIATONOVA, T. MASSAGETOV, P. . . .  
*sumtailine*,  $C_{21}H_{21}O_4N$ , m. 180.5-1.5° (from  $Me_2CO$ ),  
 $[\alpha]_D -44.4^\circ$  ( $HCl$  salt, m. 213°), which contains 2 MeO  
groups and is nonphenolic. *Papaver hybridum* gave 0.12%  
total alkaloids from which was isolated 0.04% *papybrine*  
*di-HBr* salt, decomp. 204° (from  $H_2O$ ),  $[\alpha]_D 43.0^\circ$ ; free  
base,  $C_{21}H_{21}O_4N$ , yellow amorphous solid ( $HCl$  salt, decomp.  
200°). *Roemeria hybrida* gave 0.8% alkaloids, from which  
some protopine was isolated, along with the new *roemeridine*,  
 $C_{21}H_{21}O_4N$ , m. 228-30°, which contains 1 HO and 3 MeO  
groups;  $HCl$  salt, m. 258-60°. An unknown alkaloid, m.  
230°, was also found. *P. pavoninum* gave 0.1% total  
alkaloids which yielded protopine,  $\alpha$ -allocryptopine (m.  
157-0°), and *roemeridine*, m. 226-8°. *Chelidonium majus*  
gave 0.7% total alkaloids from which were isolated (through  
the sulfates): sanguinarine, m. 240-2°; chelerythrine, m.  
210-13°; *chelidamine*,  $C_{21}H_{21}O_4N$ , m. 204-5°,  $[\alpha]_D -316.9^\circ$   
( $HCl$  salt, m. 254-8°; *methiodide*, m. 275°). Some pro-  
topine was isolated from the mother liquor after removal  
of *chelidamine* from  $MeOH-CHCl_3$  soln., and finally  
some *chelidonine*, m. 133°,  $[\alpha]_D 110^\circ$ ,  $C_{21}H_{21}O_4N$ ;  $HCl$  salt,  
m. 295°.  
G. M. Kosolapoff

2/2

MITRIN L.M.

Spatial configuration of saccharinic acids. L. M. Mitin and G. O. Gerasimov (All-Union Sci. Research Chem. Exptl. Inst., Moscow). *Doklady Akad. Nauk S.S.S.R.* 93, 341-3 (1953).—On the basis of Hudson's rules the following conclusions are reached. The lactone of saccharinic acid (saccharin),  $[\alpha]_D^{25} +33^\circ$ , and isosaccharin,  $[\alpha]_D^{25} +61.0^\circ$ , have the D-configuration at C-4, while metasaccharin,  $[\alpha]_D^{25} -40.9^\circ$ , has L-configuration at C-4. Thus the configuration of saccharinic acids is the same as that of initial sugars. In metasaccharin the initial configuration of D-galactose is retained except for the loss of asymmetry at C-3. Saccharin and isosaccharin which have branched-chain structures show inversion at C-2, which was C-3 in the initial sugar. Thus the stereochemistry of saccharinic acid formation is more complex in the examples with branched chains than previously supposed (cf. Sowden and Kuenne, *J. Am. Chem. Soc.* 75, 2763 (1953)). Ca saccharinate,  $[\alpha]_D^{25} -6^\circ$ ; Sr isosaccharinate,  $[\alpha]_D^{25} -5.8^\circ$ ; Ca metasaccharinate,  $[\alpha]_D^{25} +25.4^\circ$ . In solns., immediately after formation from the salts, saccharinic acid has  $[\alpha]_D^{25} -12.1^\circ$ , isosaccharinic acid  $[\alpha]_D^{25} -35.8^\circ$ , and metasaccharinic acid  $[\alpha]_D^{25} +20.3^\circ$ . Phenylhydrazide of saccharinic acid, m. 164-5°,  $[\alpha]_D^{25} +5.2^\circ$ . Isosaccharinanilide m. 169-9.5°,  $[\alpha]_D^{25} +13.1^\circ$ , metasaccharinanilide m. 108-9°,  $[\alpha]_D^{25} +57.3^\circ$ . Saccharin yields a monoketone deriv., m. 61-1.5°,  $[\alpha]_D^{25} -35.4^\circ$ , which gives a Bz deriv., m. 118-19°,  $[\alpha]_D^{25} +11.3^\circ$ . Thus the isopropylidene group is probably at the 2,3-positions, thus calling for the D-configuration of C-3. G. M. Keselapoff

UTKIN, L.M.

PERSHIN, G.N., laureat Stalinskoy premii, professor, redaktor;  
SHCHUKINA, M.N., professor, redaktor; NATRADZE, A.G., otvetstvennyy  
sekretery; SMERGIYEVSKAYA, S.I., professor, chlen redaktsionnoy  
kollegii; MAGIDSON, O.Yu., professor, laureat Stalinskoy premii,  
chlen redaktsionnoy kollegii; UTKIN, L.M., professor, chlen redaktsion-  
noy kollegii; MASHKOVSKIY, M.D., professor, chlen redaktsionnoy kolle-  
gii; KARAKHANYAN, O.I., redaktor; GLUKHOYEDOVA, G.A., tekhnicheskoy  
redaktor.

[Synthomycin] Sintomitsin. Otvet. red. G.N.Pershin. Moskva, Gos.  
izd-vo med. lit-rv. 1954. 194 p. (MLRA 7:8)

1. Moscow. Nauchno-issledovatel'skiy khimiko-farmatsevticheskiy  
institut.  
(Chloromycetin)





*L.M. UTKIN*

5'-p-tosyldiacetonedendroketoze, m. 101-157° [α]<sub>D</sub><sup>20</sup> -74.5°; II gave 5'-p-tosyl deriv. m. 91.5-2° after evapd. of Et<sub>2</sub>O. The product after evapd. of Et<sub>2</sub>O was sapon. with MeOH. After evapd., treat. with 50 ml. H<sub>2</sub>O, evapd. in vacuo, etrd. with Et<sub>2</sub>O, and the ext. evapd. yielding 6.6 g. isomeric diastereone derivs. with after tosylation in pyridine gave 2.1 g. 1-p-tosyl-2,3,4,5'-diacetonedendroketoze, m. 119.5-20° (from petr. ether or BuOH), first melting at 142° [α]<sub>D</sub><sup>20</sup> 12.9° (Me<sub>2</sub>CO); the di-form, m. 90.5-2°, was prepd. similarly, using with II. The tosyl-deriv. of I and II gave a phenyllosazone, m. 155-7°, giving no depression with phenyllosazone of 4-hydroxymethyl-3-ketopentose (Fischer's β-acetose). Oxidation of I with 1% K<sub>2</sub>MnO<sub>4</sub> in 1% KOH gave K<sub>2</sub> 2,3,4,5'-diacetonedendroketoze, m. 119.5-20° (from petr. ether or BuOH), the di-form, m. 90.5-2°. The p-tosyl-2,3,4,5'-diacetonedendroketoze, treated with MeOH, m.p. 120-5°, gave 1-p-tosyl-2,3,4,5'-diacetonedendroketoze, m. 119.5-20° (from petr. ether or BuOH), and extn. with Et<sub>2</sub>O gave 5'-p-tosyl-5-deoxy-1,2,3,4-diacetonedendroketoze, m. 41.5-2°, [α]<sub>D</sub><sup>20</sup> -83.9°; the di-form, m. 53-4°. The active portion on hydrogenation over Ni in MeOH-H<sub>2</sub>O gave 1,2,3,4-diacetonedendroketoanethyle, b.p. 74.5°, [α]<sub>D</sub><sup>20</sup> 18.4° (Me<sub>2</sub>CO) which with 1% H<sub>2</sub>O, m.p. 119.5-20°.

L. M. Utkin

DANILOVA, A.; UTKIN, L.; MASSAGETOV, P.

Study of alkaloids from the groundsel (*Senecio macrophyllus*). Zhur.ob.khim.  
25 no.4:831-834 Ap '55. (MIRA 8:7)

1. Vsesoyuznyy Nauchno-issledovatel'skiy khimiko-farmatsevticheskiy  
institut imeni S. Ordzhonikidze. (Alkaloids) (Groundsel)

AUTHORS: Koretskaya, N. I.; Danilova, A. V.; Utkin, L. M. 79-2-58/58

TITLE: Synthesis of Harmine Derivatives. Part 1. (Sintez proizvodnykh garmina. I.)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, vol 27, No 2, pp. 542-545 (U.S.S.R.)

ABSTRACT: This report describes the synthesis of certain harmine derivatives for pharmacological investigation. The new harmine derivatives were identified as Ind-N-(beta-diethylamino)-ethylharmine, dichlorohydrate; Py-N-chlor-(beta-diethylamino)-harmine ethylate, hydrochloride; Ind-N-benzylharmine; Py-N-iodomethylate Ind-N-benzylharmine: Py-N-chloromethylate of Ind-N-benzylharmine, ethyl ether of norharmine carboxylic acid. The authors obtained new derivatives of tetrahydroharmine, namely, Py-N-(beta-diethylamino)-ethyltetrahydroharmine; tetrahydronorharmine carboxylic acid.

Card 1/2 There are 5 references, none of which are Slavic.

Synthesis of Harmine Derivatives. Part 1.

79-2-58/58

ASSOCIATION: All-Union Scientific Research Chemical Pharmaceutical Institute imeni  
S. Ordzhonikidze

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SUBMITTED: March 18, 1956

AVAILABLE: Library of Congress

Card 2/2